HIGH DEFINITION
IP NETWORK CAMERA

User's Manual

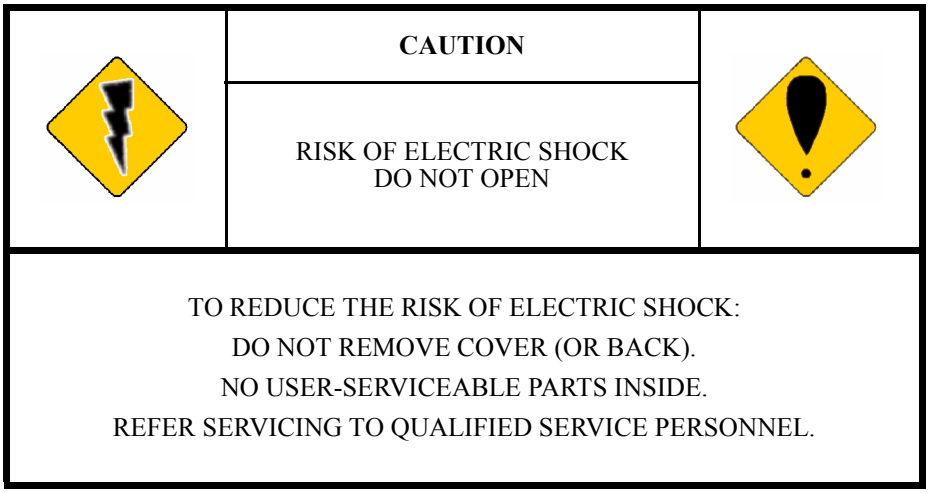
VERSION 1.2 ENGLISH

Safety Warning

To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

Do not insert any metallic object through ventilation grills.

Caution


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
TO REDUCE THE RISK OF ELECTRIC SHOCK:
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

General Notice

Product specifications are subject to change without prior notice.

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I. Package Content

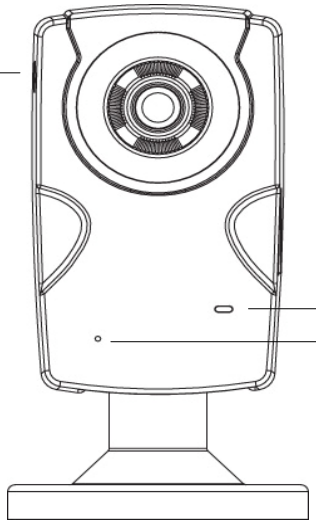
Following items can be found in each original product package:

- IP Camera Main Unit
- Power Adaptor
- Bracket
- Network Cross-Over Cable
- Wireless Receiver (selected models only)
- Quick Guide
- Software CD

NB. SD Card is not included.

II. Panel View & Function

FRONT VIEW

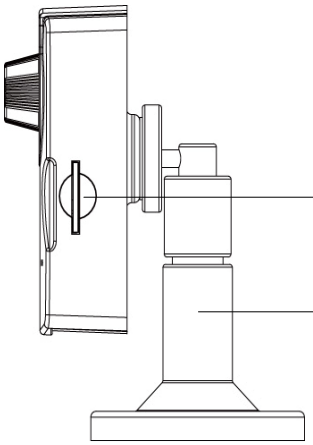


Wireless Port
Inserting Wireless Receiver (selected models only)

Power Indicator

Embedded Microphone

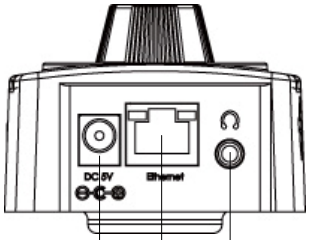
SIDE VIEW



SD Card Port
Inserting SD Card (not included)

Bracket
Mounting IP Camera to appropriate location

BOTTOM VIEW



Audio Out
Connecting to speaker

Ethernet Port
Connecting to network

DC Power In
Connecting with power adapter

III. Specification

VIDEO	
Sensor	1/4" progressive scan CMOS
Video Standard	Dual streaming codec MPEG-4 SP, JPEG
Group of Picture (GOP)	I / IP, selectable 3 levels multiplier
Data Rate	Streaming 1: 32.0 kbps ~ 4.0 Mbps CBR, 1 ~ 10 levels VBR Streaming 2: 32.0 kbps ~ 3.0 Mbps CBR, 1 ~ 10 levels VBR
System	60 / 50 Hz
Resolution & Frame Rate	
SXGA	1280x1024 10/10 fps
VGA	640x480 30/25 fps
QVGA	320x240 30/25 fps
QQVGA	160x120 30/25 fps
Minimum Illumination	1.0 Lux
Imaging	
Contour	Brightness (9 levels), contrast (5 levels), exposure (5 levels), sharpness (7 levels)
Fine Tuning	AGC (5 levels), BLC (auto), AWB (auto), AES (auto)
Noise Reduction	Night Efficientor, selectable 4 levels
Orientation	Flip, Mirror
Zooming	Digital 4X
AUDIO	
Compression Format	ADPCM, bi-directional streaming, 50 ~ 16,000 Hz, more than 58 dB
Audio Line Input	Embedded microphone
Audio Line Output	Yes
CPU MODULE	
CPU	ARM 9, 32-bit RISC
RAM / ROM	64MB / 8MB
ALARM	
Video Analytics	Video Motion Detection (VMD), 3 selectable zones, 10 sensitivity levels
Triggering Reaction	E-Mail, FTP, SD Card
Pre / Post Alarm	5 / 10 sec
NETWORK	
Protocols	3GPP, DDNS, DHCP, FTP, HTTP, NTP, PPPoE, SMTP, TCP/IP, UPnP
Ethernet	10/100 Base-T, auto sensing, RJ-45, LED indicator
Wireless	IEEE 802.11b/g compliant (embedded, optional)
User Group	Maximum 20 users, 10 users simultaneously
Encryption	WEP 64 / 128-bit, WPA, PSK
LOCAL RECORDING	
SD Card Storage	VMD, Network IP Detection, Network Disconnection Detection (wired mode only)
Format	AVI (MPEG-4 / JPEG), JPEG
Control	Playback (video), file management, auto overwrite

REMOTE RECORDING

Mobile Surveillance	3G / 3G Symbian / Smartphone mobile & PDA phone
Web Surveillance	Web browser, manual, VMD, AVI (MPEG-4 / JPEG), JPEG
Advanced Surveillance	Multi-channel iNVR surveillance system (professional version optional)

GENERAL

Unit Configuration	Via web browser (reboot, factory default, time synchronization)
Profile Management	Configuration values export & import
Firmware	HTTP mode, remote update
Authentication	ID, Password
Log Listing	System, VMD
Certification	CE, FCC

MECHANICAL

Lens Type & Mounting	Board Lens 4.0 mm, F2.0, fixed Iris, angle 48˚, changeable
Dimension (HxWxD)	67.1x111.7x50.6 mm
Weight	180 g

ELECTRICAL

Input Voltage	DC 5V
Power Consumption	Wired: 600mA, 3W; Wireless: 800mA, 4W

BROWSING REQUIREMENT

OS	Microsoft Windows 2000 / XP / 2003 / Vista
CPU	Intel Celeron 1.6 GHz, 256 MB RAM
Graphic	32 MB
Web Browser	Microsoft Internet Explorer 6.0 or above

ENVIRONMENTAL

Operating	0˚C ~ 45˚C
Storage	-30˚C ~ 60˚C
Humidity	0 ~ 80% RH non-condensing

IV. Installation

This chapter contains following four main sections:

A. Display

B. Hardware

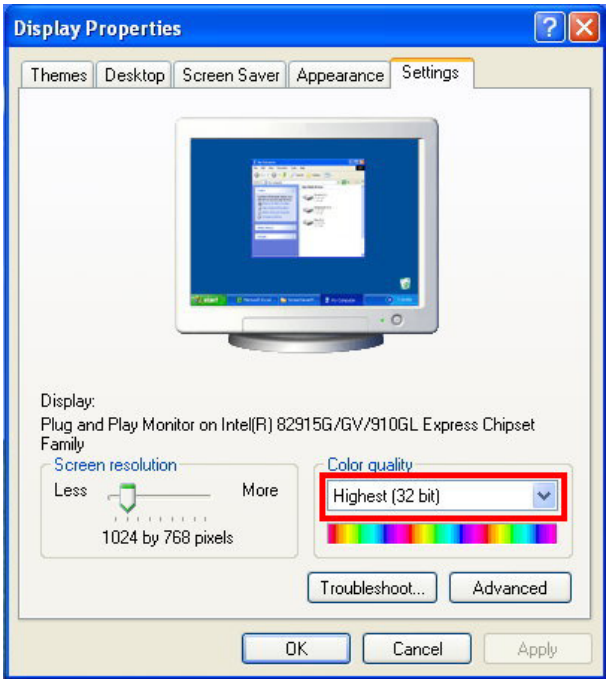
C. IP Manager

D. ActiveX Control

A. Display

a. On desktop, right-click mouse, then select [Properties].

b. Go to [Settings], on [Color Quality], change colour quality of display to 32 bit.



B. Hardware

a. Provide electricity to IP Camera with power adaptor provided.

b. Connect IP Camera directly to PC or network with Ethernet cable provided.

C. IP Manager

IP Manager is a smart and convenient application aimed at assisting individual users for assigning IP addresses for IP CAMERAS in just a few mouse clicks. It is available in Software CD provided in the package.

IP Manager can configure three types of IP instantly:

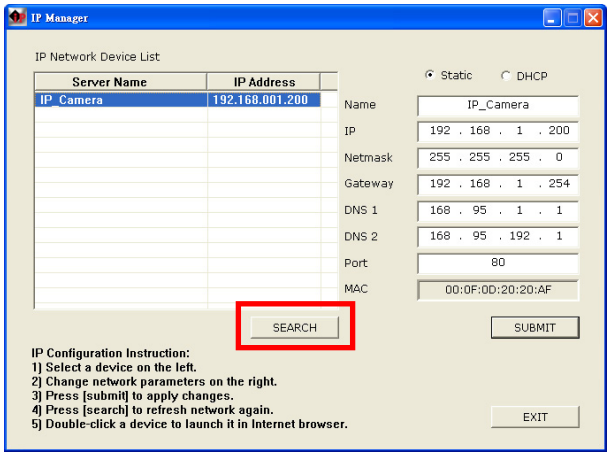
- Fixed IP (public IP or virtual IP)
- DHCP (dynamic IP)
- Dial-up (PPPoE)

a. Double-click IP Manager icon in order to execute.

b. Unblock Windows Firewall alert if you are using Windows XP SP2 or above.

Windows Security Alert
To help protect your computer, Windows Firewall has blocked some features of this program.
Do you want to keep blocking this program?
Name: IP MANAGER
Publisher:
Keep Blocking
Unblock
Ask Me Later
Windows Firewall has blocked this program from accepting connections from the Internet or a network. If you recognize the program or trust the publisher, you can unblock it. When should I unblock a program?

c. IP Manager Graphic User Interface.



IP Manager will search all IP Cameras connected to the current network. Or users can click [SEARCH] to refresh the network again.

Default IP is **192.168.1.200**.

d. Modify IP parameters.

Click one of the IP Cameras listed on the left menu. The network parameters of this particular IP Camera will be shown on the right menu. Users may change Name of IP Camera with personal attachment (e.g., office, warehouse, etc).

After changing all required parameters, click [SUBMIT] to apply the changes.

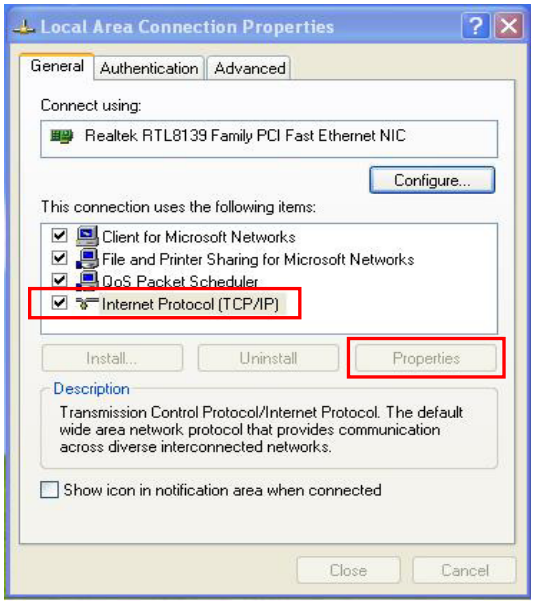
Finally click [OK] in order to re-boot the device.

e. Subnet.

It is extremely important that both PC and IP Camera must locate within the **SAME SUBNET**. An example is provided in the followings:

If both have the SAME subnet:
IP CAMERA: 192.168.1.200
PC: 192.168.1.100

If both DO NOT have the same subnet:
IP CAMERA: 192.168.2.200
PC: 192.168.1.100



If your PC and IP Camera *DO NOT* locate within the same subnet, please follow steps described below accordingly:

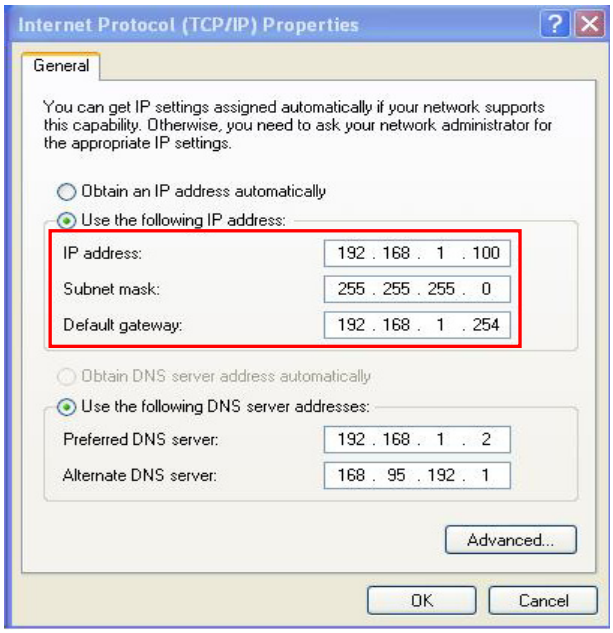
1. Locate Windows OS setting window for TCP/IP:

[Control Panel] > [Network Connections] > [Local Area Connection] > [Properties] > [Internet Protocol (TCP/IP)]

Double-click on [Internet Protocol (TCP/IP)] or click on [Properties] in order to change settings.

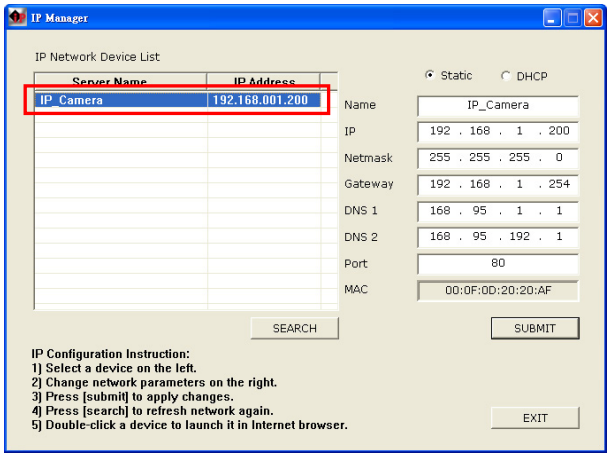
2. Modify *Subnet Mask* values.

Make sure both IP Camera and PC have identical values.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 1 . 100
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 192 . 168 . 1 . 2
Alternate DNS server: 168 . 95 . 192 . 1
Advanced...
OK
Cancel

f. Launch IP Camera.

The easiest way to access IP Camera remotely is by double-clicking on a selected IP Camera listed on [IP Network Device List] on IP Manager. After that, IP Camera will be launched directly in a standard Internet browser such as Microsoft Internet Explorer.


IP Manager
IP Network Device List
Server Name
IP Address
IP_Camera
192.168.001.200
Static
DHCP
Name IP_Camera
IP 192 . 168 . 1 . 200
Netmask 255 . 255 . 255 . 0
Gateway 192 . 168 . 1 . 254
DNS 1 168 . 95 . 1 . 1
DNS 2 168 . 95 . 192 . 1
Port 80
MAC 00:0F:0D:20:20:AF
SEARCH
SUBMIT
IP Configuration Instruction:
1) Select a device on the left.
2) Change network parameters on the right.
3) Press [submit] to apply changes.
4) Press [search] to refresh network again.
5) Double-click a device to launch it in Internet browser.
EXIT

Or alternatively, you may open an Internet browser and enter IP address of IP Camera manually in the [Address Bar].

D. ActiveX Control

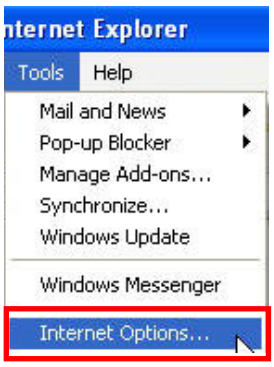
a. Accept ActiveX Control to be installed.

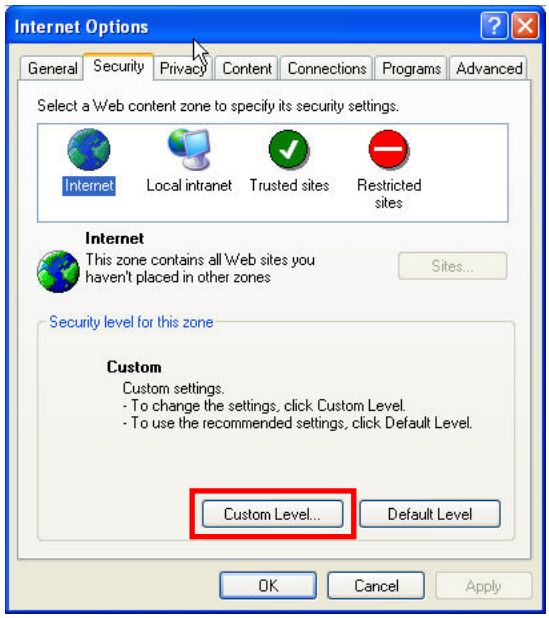
For the first access of IP Camera in this particular PC, Internet browser will request you the permission to install an ActiveX Control provided by IP Camera.

b. Security Level of Internet Browser.

If installation has failed, please check *Security Setting* of Internet browser. Following is an example for Internet Explorer:

Internet Explorer > [Tools] > [Internet Options] > [Security] > [Custom Level…] > [Security Settings].

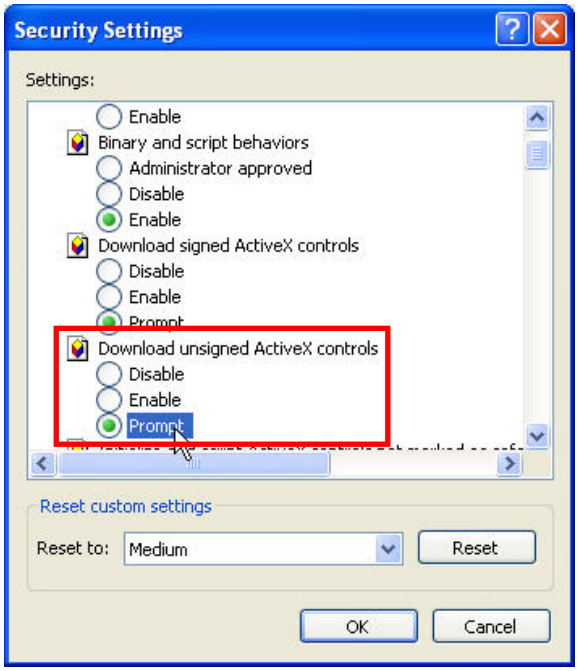


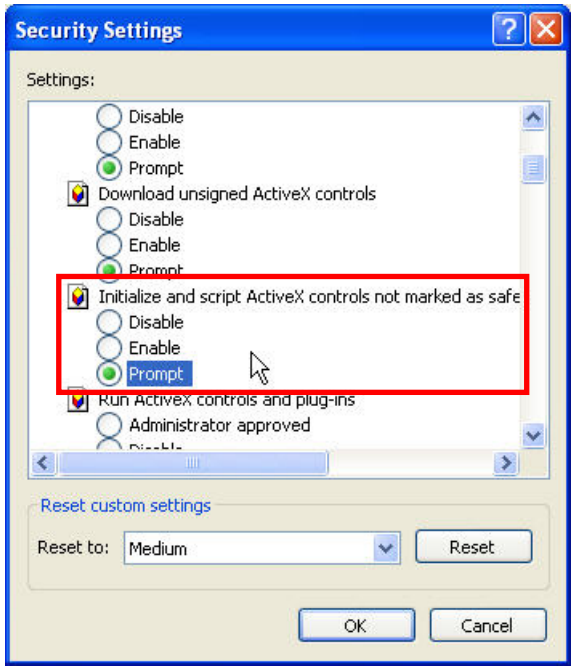


Locate the following options and select [Enable] or [Prompt] for both of them:

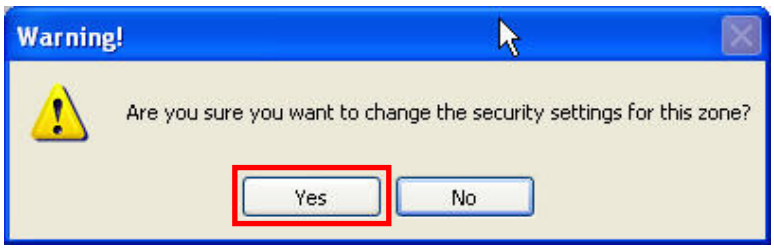
- *Download unsigned ActiveX control*
- *Initialize and script ActiveX controls not marked as safe*

See examples shown on the following page:





Finally you will be prompt for following dialogue window, asking you to confirm security changes made to Internet browser. Click [Yes] to continue.



V. IP Viewer

IP Viewer is a web-based surveillance platform designed for remote surveillance purposes such as real-time display, playback, and management. It has already been embedded inside of each IP Camera, user is not required to install any additional software in order to operate it.

This chapter contains three sections and will describe initialization and basic operations of IP Viewer:

A. Login ID & Password

B. Graphic User Interface

C. On-Screen Operations

A. Login ID and Password

After successful configurations of IP parameters and installation of ActiveX Control, launch IP Camera in an Internet browser again, user will be bringing into IP Viewer for user-identity authentication.

To log-in, enter factory-default *User Name* and *Password* carefully:

Default *User Name* is **admin**
Default *Password* is **admin**

Note that, both User Name and Password are ***case sensitive***.

Remember my password. For extra security, Do NOT click especially if you are using a public PC.

B. Graphic User Interface

Now you shall see IP Viewer main graphic user interface (GUI) as shown below. Primary functions of IP Viewer is to display real-time video streaming and provide complete system configurations of IP Camera remotely.

1	Real-time display
2	Snapshot an evidence
3	Recording
4	Digital zoom
5	Playback SD archives
6	System configuration
7	Status bar
8	Dual streaming channel
9	Bi-directional audio communication
10	Online visitor

1. ***Real-Time Display*** panel shows live streaming of video information remotely.

2. ***Snapshot an Evidence*** of important event in still JPEG format.

3. ***Recording*** as AVI files continuously. For details, see next section.

4. ***Digital Zoom*** for bringing up an area of interest closely. For details, see next section.

5. ***Playback SD Archives*** of important events captured and stored in local SD Card medium.

6. ***System Configuration*** for user accounts, system, network, video, audio, events, servers, system logs, etc.

7. ***Status Bar*** shows system time, video resolution, and current video frame rate.

8. ***Dual Streaming Channel*** enables secondary viewing device (such as mobile or PDA phones) to receive real-time streaming at lower-yet-appropriate frame rate per second. This feature is available only if ***Streaming 2*** is being enabled in ***Video*** setting.

9. ***Bi-directional Audio Communication*** enables full-duplex voice communication between local and remote surveillance sites. To speak, click on [Communication] box. To listen, enable ***Incoming Audio*** in ***Audio*** setting.

10. ***Online Visitor*** shows number of users are currently accessing this IP Camera.

C. On-Screen Operations

There are five more features available on the main GUI.

Right-click mouse on the real-time video, then a pop-up menu will show up as follows:

Snapshot. This is identical to ***Snapshot an Evidence*** function described above.

Record Start. This is identical to ***Recording*** button shown on the main GUI. *Continuous manual recording* (round-the-clock, RTC) of both audio (if enabled) and video streams in standard AVI format in the PC. You will be prompt for the location where is used to save file in the PC.

To avoid single AVI file being oversized that cannot be opened by PC, IP Camera will save continues recording in next, new AVI file every 15 minutes automatically.

To stop recording, right-click mouse again, then select [Record Stop].

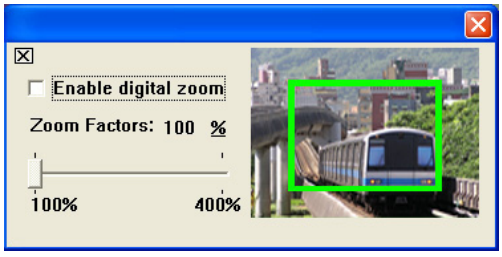
You may ***playback*** recorded AVI files via a standard *Microsoft Media Player* on any third-party PC without having required to install third-party video codec in advance.

Mute. Turn off the audio. Click again to turn it on.

Full Screen. Simply double-click on the real-time video, it will be enlarged into *full-screen mode*. Press [Esc] on keyboard or double-click the real-time video again, it will be returned back to *normal mode*.

Or select [Full Screen] on the pop-up menu in order to operate.

Zoom. IP Camera provides 4X digital zooming. This is identical to ***Digital Zoom*** button shown on the main GUI.



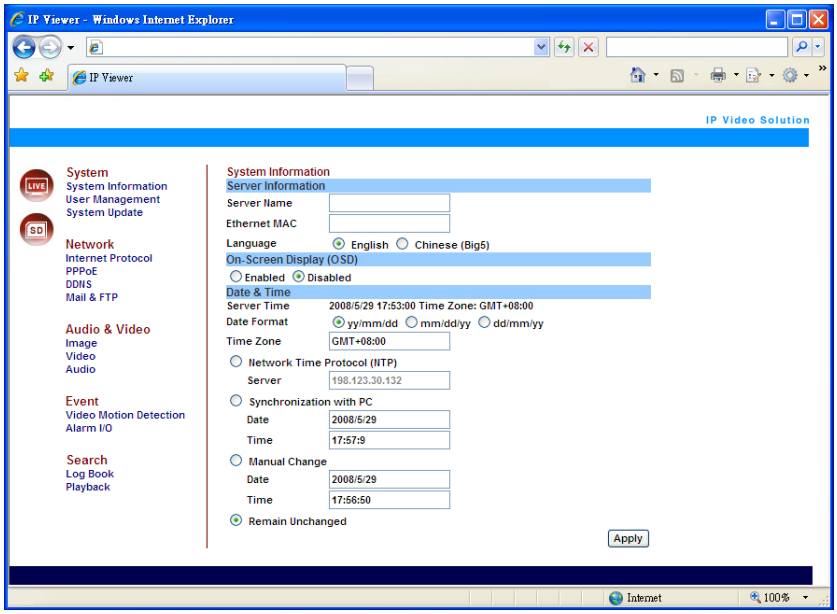
Click on [Enable digital zoom] in order to activate this function. Drag on [Percentage Bar] in order to select appropriate zooming size (1~4X). Drag the [Green Block] in order to zoom-up a particular area of interest on real-time display.

VI. System Configuration

This chapter will provide detailed surveillance settings for IP Viewer.

On IP Viewer, click [System Configuration] button as shown below in order to enter:

After successful entering, a setting page will be shown on Internet browser:



Once you have finished settings, click [Live] icon shown below in order to return to real-time display of IP Camera:

There chapter contains five main sections and will detail complete system configurations thoroughly:

A. System

B. Network

C. Audio & Video

D. Event

E. Search

A. System

This section contains three main portions as follow:

a. System Information

b. User Management

c. System Update

a. System Information.

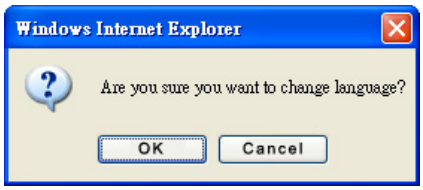
1. Server Information.

You may set up camera name, language, and date/time in this section.

Server Name. This is the name of IP Camera and will also displays on *IP Manager*.

Ethernet MAC. This is MAC address for Ethernet module and is **NOT** for wireless module (optional).

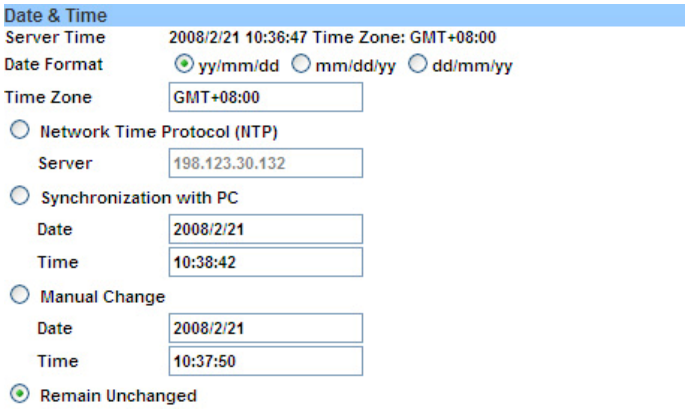
Select language. You may change language of setup menu in this section. After selection, following dialogue window will pop up, and click [OK] to confirm the change.



2. Date & Time.

You may set up *date format*, *time zone*, *methods of date/time adjustment* in this section.

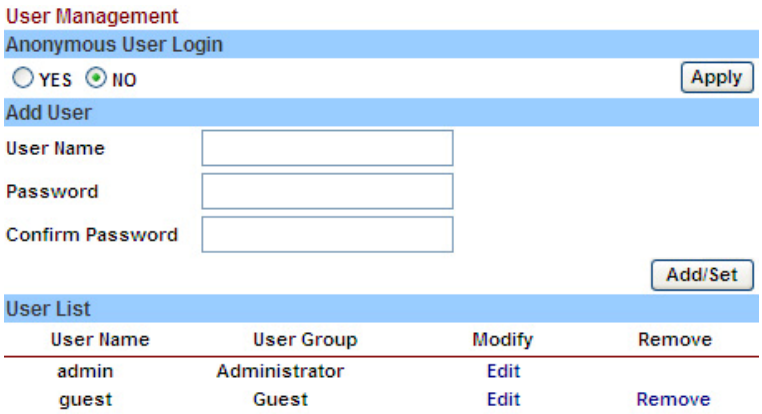
To adjust date/time, user may either synchronize with NTP Server or PC, or may enter manually.



Finally, click on [Apply] to effect the changes.

b. User Management.

You may setup user authority and manage multiple account information in this section:



IP Camera supports three levels of user authority: administrator, guest, and anonymous user

1. Anonymous User Login.

Select [Yes] to allow anonymous login. Select [No] to request *User Name* and *Password* when accessing IP Camera. *Anonymous User* is not allowed to enter ***System Configuration*** pages.

2. Add User.

Enter new set of *User Name* and *Password*, then click [Add/Set].

If guest account's *User Name* entered is already existing, click [Add/Set], the new Password entered will override. This method, however, does not apply to administrator account.

Guest User is also not allowed to enter ***System Configuration*** pages.

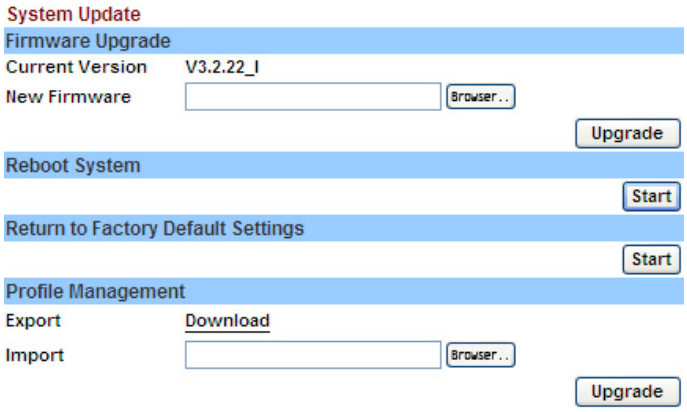
IP Camera accepts maximum *20 registered user accounts* and *10 simultaneous user login*.

3. User List.

All registered user accounts will be listed in this section. You may click [Edit] or [Remove] to modify each account. If you click [Edit], following dialogue window will pop up. You will be allowed to modify *User Name* and *Password* again.

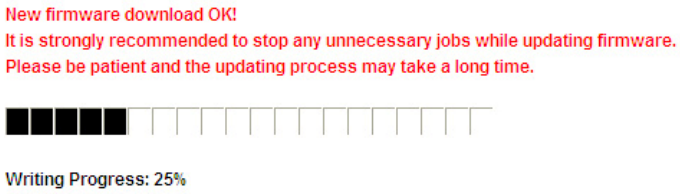
For extra security, you are recommended to change your password every 30 days.

c. System Update.



1. Firmware Upgrade.

To update firmware remotely, click [Browse…], and select the location of firmware file from PC. Then click [Upgrade] to proceed. Follow online instructions to continue.


New firmware download OK!
It is strongly recommended to stop any unnecessary jobs while updating firmware.
Please be patient and the updating process may take a long time.
Writing Progress: 25%

2. Reboot System.

Click [Start] to re-boot IP Camera.

3. Return to Factory Default Settings.

Click [Start] to delete and return all settings of this IP Camera back to factory default values.

4. Profile Management.

Profile Management allows export and import of configurations values of IP Camera. For one, you may backup current settings for future use. For another, you will save a lot of time configuring more than one IP Camera of identical or similar settings.

Export. Right-click on [Download] in order to [Save As] a file in PC.

Import. Click on [Browse…] in order to overwrite configuration file saved in the past or from another IP Camera. Click [Upgrade] then follow the rest of online instructions to continue.

B. Network

This section contains five main portions as follow:

a. Internet Protocol

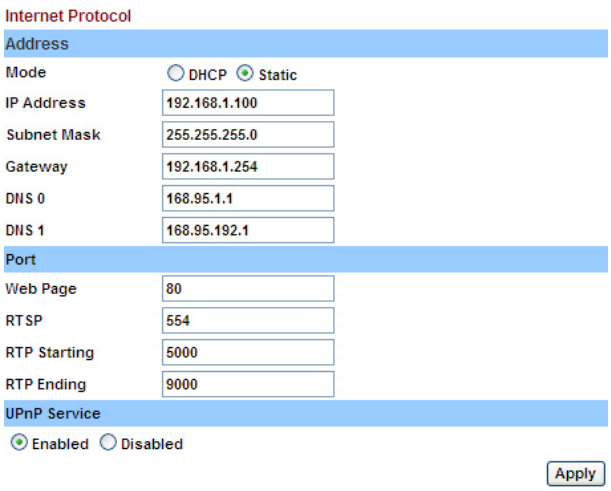
b. PPPoE

c. DDNS

d. Mail & FTP

e. Wireless (optional)

a. Internet Protocol.



1. Address.

IP Camera supports both DHCP and Static connection modes.

DHCP. By using DHCP, IP Camera will receive all the network parameters automatically.

Static IP. Enter IP information in corresponding blocks manually.

2. Port.

Enter port information under this section if it is so required. Default port for IP Camera is 80.

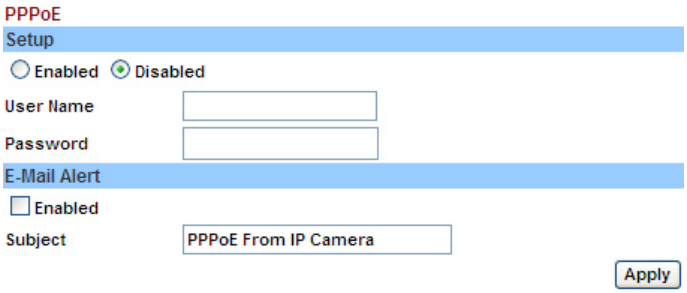
RTSP/RTP ports are designated for 3GPP mobile surveillance. Consult this section with your local telecom service provider.

3. UPnP Service.

Click [Enabled] if your router supports *network UPnP* (universal plug and play).

Finally, click [Apply] to effect the changes.

b. PPPoE.



1. Setup.

IP Camera supports PPPoE method of Internet connection via ADSL modem.

Click [Enabled] in order to activate. Enter ADSL dial-up *User Name* and *Password* in corresponding blocks.

2. E-Mail Alert.

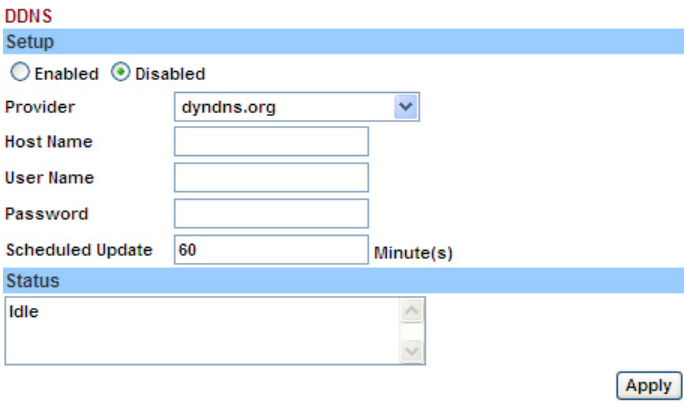
This is a *system security alert* feature. When Internet connection via PPPoE method is being established, IP Camera will send an e-mail notification to a user-specified e-mail account.

Click on [Enabled] in order to activate. You may also modify e-mail title in [Subject] line.

For settings over e-mail, please refer to ***Mail & FTP*** settings.

Finally, click [Apply] to effect the changes.

c. DDNS.



For IP Camera installed behind ICS or NAT devices, DDNS (Dynamic DNS) service is required.

1. Setup.

Click on [Enabled] in order to activate DDNS support.

Provider. Select a service provider then enter required account information in corresponding blocks.

Scheduled Update. Most free DDNS service providers (e.g., DynDNS.org) have restriction for frequency of use per period of time. You shall not make schedule timing *too frequent*, otherwise *Host Name* may be blocked. Recommended refreshing interval is *every 1,440 minutes* (i.e., once a day).

2. Status.

This section will display status of DDNS connection. Below are typical system messages:

Updating. Service information is being updating.

Idle. Currently not in service.

DDNS registration successful, can now log by http://<username>.ddns.camddns.com. Register successfully. You may proceed login.

Update Failed, the name is already registered. The user name has already been used. Please change it. You shall provide different *User Name*.

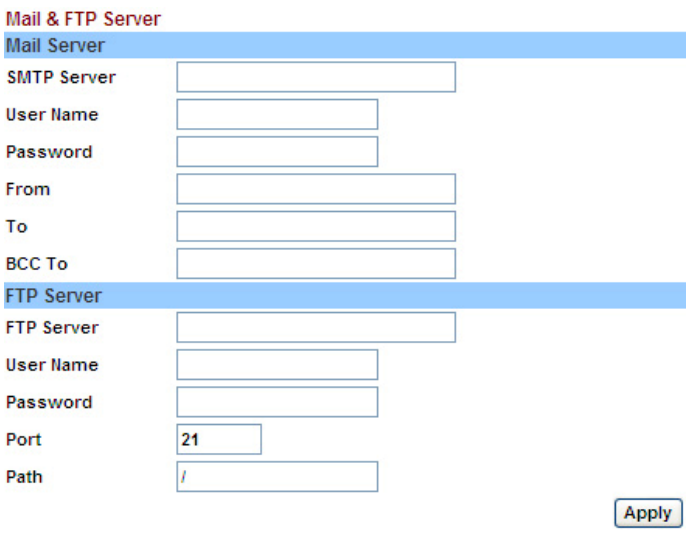
Update Failed, please check your internet connection. Network connection failed. Check your network connection again.

Update Failed, please check the account information you provide. The server, user name, and password may be wrong. Check your server and account information again.

Finally, click [Apply] to effect the changes.

d. Mail & FTP.

This section allows users to set up e-mail account and FTP server in order to receive *alert messages* and *graphic evidences* from IP Camera.



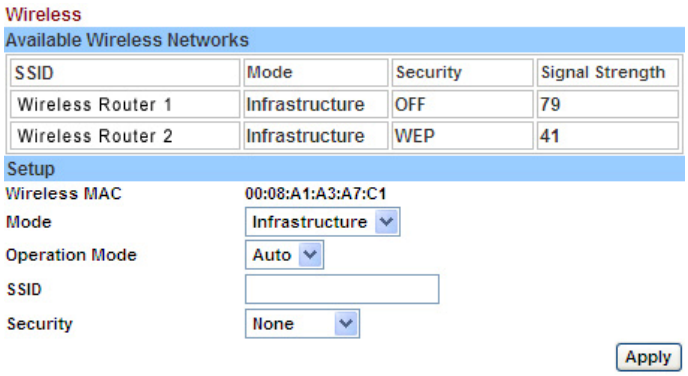
Finally, click [Apply] to effect the changes.

e. Wireless.

Please note, wireless network feature is available only to selected models, and is based on IEEE 802.11 b/g protocols.

Following steps will guide you through setup procedures for wireless connection:

1. Connect IP Camera directly to PC with cross-over network cable provided in the package.
2. Use IP Manager to detect IP Camera. *Modify IP information that is identical with parameters set in wireless Router.* Finally click [Submit] to apply changes and reboot IP Camera.
3. Use IP Manager to detect IP Camera and then launch IP Viewer in standard Internet browser.
4. Enter [System Configuration] then click [Wireless], and following setup window will be shown:



5. Available Wireless Networks.

IP Camera will display all wireless Routers it detected in this table. Make sure your wireless Router is detected and listed.

6. Setup.

Please make sure all data are identical between IP Camera and wireless Router.

Wireless MAC. This is MAC address for wireless module and is **NOT** for Ethernet module.

Mode. Infrastructure Mode is for connecting with Router and ***Ad-Hoc Mode*** is for connecting with PC.

Operation Mode. Selections for IEEE 802.11 ***b*** or ***g***. If you are not sure, please select ***Auto***.

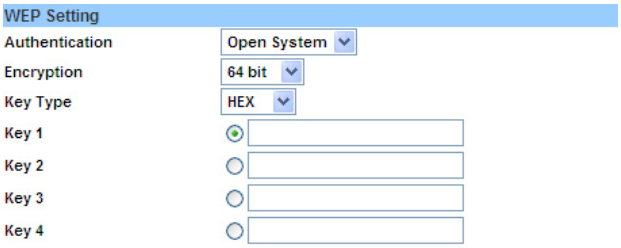
SSID. This refers to ***network ID*** of IP Camera. It can be the name of IP Camera or can be different, as long as it is *identical with SSID registered in wireless Router*.

Channel. This setting is available only under *Ad-Hoc mode*. Channel refers to channel number on wireless device, and it must be identical among IP Camera, PC, and wireless Router.

Security. IP Camera provides industry's most advanced encryption protection over wireless transmission. Supported methods include: ***WEP*** and ***WPA-PSK***.

Once again, encryption setting over IP Camera has to be identical with wireless Router's.

WEP Setting.



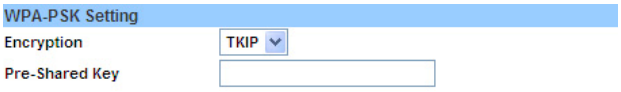
Authentication. Either **Open System** or **Shared Keys**. Please refer to your wireless Router. If you are not sure, select ***Auto***.

Encryption. Either **64-bit** or **128-bit**. Please refer to your wireless Router.

Key Type. *Key* may be regarded as set of passwords to access wireless connection. *Either* **HEX** or **ASCII**. By selecting HEX type, you may only use numbers from 0 to 9 and letters from A to F, and minimum length is 10 for 64-bit and 26 for 128-bit. By selecting ASCII type, you may input any ***case-sensitive*** characters and minimum length is 5 for 64-bit and 13 for 128-bit.

Key 1~4. Based on *Key Type*, enter keys in these blocks.

WPA-PSK Setting.



Encryption. Either **TKIP** or **AES**. Please refer to your wireless Router.

Pre-Shared Key. Enter ASCII-format key in this block. All numbers and characters are allowed and are ***case sensitive***.

Finally, click [Apply] to effect the changes. Close IP Viewer. Detach cross-over network cable between IP Camera and PC.

Now you may use IP Manager to detect wireless network and then to launch IP Camera in IP Viewer wirelessly. Or you may enter IP address in Internet browser in order to launch IP Viewer directly and wirelessly.

C. Audio & Video

This section contains three main portions as follow:

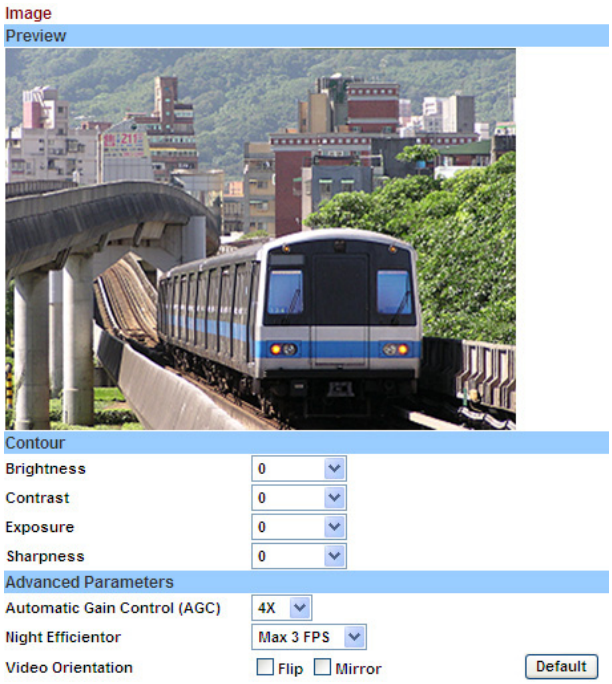
a. Image

b. Video

c. Audio

a. Image Setting.

This section allows you to fine tune image reproduction quality digitally.



Preview. Real-Time Preview Window shown above helps you to preview the changes.

Contour. You may fine tune ***Brightness***, ***Contrast***, ***Exposure, and Sharpness*** level.

Advanced Parameters.

1. **Automatic Gain Control** (AGC) is selectable from 4X to 64X.
2. **Night Efficientor** refers to downsize of maximum video frames to be transmitted during night time. Because noise signals usually are very high at night or under dark, thus video size will become larger and larger, and will therefore take too much unnecessary bandwidth and HDD space. By selecting Night Efficientor function, you can intelligently constrain maximum frames of video to be recorded per second at night time.
3. **Video Orientation.** Either flip (180 degree) or mirror (mirroring).

Click [Default] if you would like to discard changes made this time or return to factory default values.

b. Video Setting.

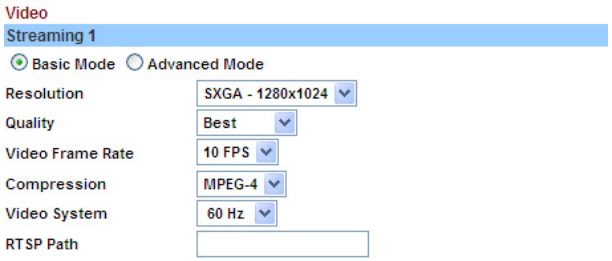
This section allows you to specify how video streaming may be compressed and transmitted over network. This IP Camera supports ***dual streaming***, allowing secondary viewing device to receive real-time IP steaming at substantially low frame rates per second, while at the same time, *does not affect* settings of primary viewing channel.

Streaming 1 **Primary Viewer** which usually will consume large bandwidth level (e.g., main monitoring station like IP Viewer and iNVR surveillance system software)

Streaming 2 **Secondary Viewer** which usually *cannot enjoy* large bandwidth level (e.g., mobile device like 3GPP, 3G Symbian, and Smartphone mobile and PDA phones)

1. Streaming 1. There are two modes available for settings: *Basic* and *Advanced* modes.

Basic Mode.



Resolution. This refers to resolution of video and there are four sizes to choose from:

SXGA	1280 x 1024	(High Definition 1.3 Megapixels)
VGA	640 x 480	
QVGA	320 x 240	
QQVGA	160 x 120	

Quality. This refers to quality of video streaming, and there are five levels to choose from. The higher the quality is, the bigger the files size will be.

Video Frame Rate. This refers to maximum frames can be transmitted per second (fps). Maximum rate for *1.3Megapixels is at 10fps for both NTSC and PAL. For* rest of resolutions, maximum rate is at *30fps for NTSC and 25fps for PAL*. In general, the higher the rate is, the better the video quality will be. As well, when video quality is higher, compression size is bigger and will take more bandwidth, thus maximum rate can be received in remote site will be less.

Video Format. IP Camera supports dual codices: ***MPEG-4 Simple Profile*** and ***JPEG*** format. Choose one of them that is best for your network bandwidth and storage capacity.

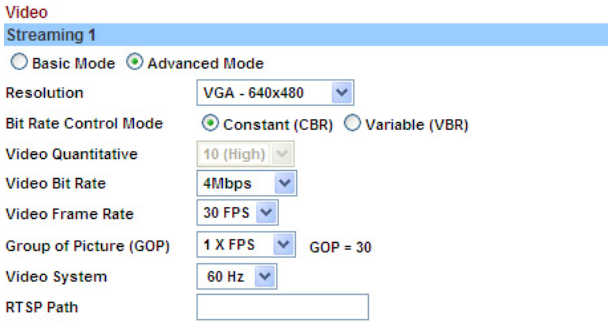
Video System. Either ***60 Hz*** (mainly NTSC) or ***50 Hz*** (mainly PAL). This will affect maximum ***Video Frame Rate*** may be transmitted.

RTSP Path. When using Smartphone device (3G Symbian, Windows Embedded, or Windows Mobile) for mobile surveillance, enter RTSP address here. Examples:

rtsp://xxx.xxx.xxx.xxx/ Streaming 1 without incoming audio
rtsp://xxx.xxx.xxx.xxx/v2 Streaming 2 without incoming audio

Please consult RTSP address with your telecom service provider.

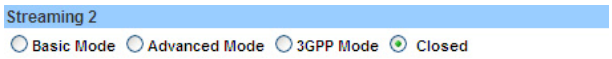
Advanced Mode. Additional fine setting options include the followings:



Bitrate Control Mode. Either ***CBR*** (Constant Bit Rate) or ***VBR*** (Variable Bit Rate). For both of them, the higher the rate is, the better the video quality will be. Please test carefully for each bit rate level.

GOP Size. It refers to *Group of Pictures* per transmission unit. The higher the GOP is, the better the video quality will be.

2. **Streaming 2.** There are four modes available for settings: ***Basic***, ***Advanced***, ***3GPP***, and ***Closed*** modes. Settings of Basic and Advanced modes are identical to those of them in Streaming 1.



3GPP Mode.

3GPP Mode is designed for mobile surveillance using 3GPP protocol. Due to limitation of protocol itself, maximum video resolution is at QQVGA. If you would like to transmit larger resolution of video, please use Smartphone device (3G Symbian, Windows Embedded, or Windows Mobile) with *RTSP* setting in *Advanced Mode* (both Streaming 1 and Streaming 2). Examples:

rtsp://xxx.xxx.xxx.xxx/3g with incoming audio stream
rtsp://xxx.xxx.xxx.xxx/3gx without incoming audio stream

Please note, not all countries and telecom companies support 3GPP features necessary for private content streaming. Please consult with your local telecom service provider prior to operation.

Finally, click [Apply] to effect the changes.

Please note, since total *video frame rate* of this IP Camera is 30/25fps by hardware, total frame rates of *Streaming 1* and *Streaming 2* together *CANNOT* exceed 30/25fps.

Please note, primary viewing channel may be set as Streaming 2. That is, there is no restriction to say that Streaming 2 shall always be the low-bandwidth channel. But if you are using 3GPP connection for remote surveillance, it will always connect to Streaming 2. If you are using Smartphone device via RTSP ports for remote surveillance, either streaming channel is acceptable.

c. Audio.

This IP Camera provides one *embedded microphone* (audio in) and one *audio out port* for users to connect with *speaker* (audio out), as well it supports *bi-directional audio*, thus allowing direct and simultaneous voice communication between local and remote users.

To enable audio transmission from IP Camera (local) to IP Viewer (remote), click [Enabled] to activate.

To enable audio transmission from IP Viewer (remote) to IP Camera (local), click [Communication] on IP Viewer real-time display window.

Please note, by enabling audio communication, it means portions of CPU resource and network bandwidth will be consumed by audio, thus *maximum video (frames per second) may be transmitted* may have to be decreased technically.

D. Event

This section contain two main portions as follow:

a. Video Motion Detection

b. Event Triggering

a. Video Motion Detection.

1. Setup.

Video motion detection (VMD) is a video content analytics (VCA) which can detect motion occurred in video digitally. When VMD is being detected, a series of reactions may be taken automatically.

Area. Each IP Camera is eligible for three areas of VMD. Each one is represented in *different color*. To activate, click [Area 1] *button* then use mouse to drag an area on preview window.

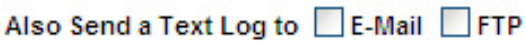
Sensitivity. This function enables sensitive level of VMD. For instance, the size of a person is very small on a public square and the size is even smaller if camera is mounted far away. Thus, the movement of this person usually cannot be sensed sharply. If you encounter similar situations, you can increase sensitivity level of VMD. The higher the sensitivity level is, the more sensitive the detection result will be.

Area 1/2/3. Check *box* of [Area 1] in order to setup method of reactions (described below) when a motion is being detected. The same method also applies to [Area 2] and [Area 3].

E-Mail. When a motion is being detected, an ***Alert Message*** with video evidence as attachment will be sent to a pre-defined e-mail account.

FTP. When a motion is being detected, video evidence will be sent to a pre-defined FTP account.

Save to SD Card. When a motion is being detected, evidence will be recorded to local SD Card storage port (video only). At the same time, you may also ***Send a Text Log*** to e-mail or FTP, notifying users that there has been an event occurred locally.

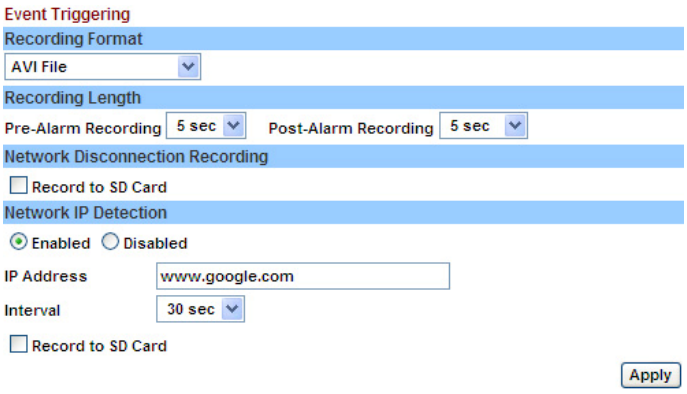


Interval between two recordings is fixed at 30 second.

Subject. Title of Alert Message to be sent via e-mail.

Interval. This is referring to period between two VMD events. Thus IP Camera will not overreact to a longer-time event.

b. Event Triggering



This section defines types and lengths of evidence to be sent to pre-defined e-mail account and FPT server.

As well, when network is disconnected, events may be recorded to local SD Card storage.

1. Recording Format.

AVI File. IP Camera will send ***one clip of video evidence*** in AVI format (either MPEG-4 or JPEG), with respect to pre-alarm and post-alarm recording made in ***Recording Length*** section.

Series of JPEG File(s). IP Camera will send ***a series of still image evidence*** in JPEG format, with respect to pre-alarm and post-alarm recording made in ***Recording Length*** section. This feature is available only when ***Video Compression*** is set to JPEG mode.

Single JPEG File. IP Camera will send ***one piece still image evidence*** in JPEG format, with respect to frequency made in ***Interval*** section.

Because the size of still JPEG is the smallest, this option is recommended for e-mail alerts or those who use mobile device (mobile and PDA phones) to receive e-mails.

2. Recording Length.

IP Camera is intelligent enough to process pre-alarm and post-alarm recording so that you will never miss any important events against your interests.

Pre Alarm: **0~5 second**.
Post Alarm: **0~10 second**.

3. Network Disconnection Recording.

Important events shall always be recorded when network is not available (not able to send alert messages with video or image evidences via e-mail or FTP). Click [Record to SD Card] to enforce compulsory recording of events to local SD card storage, *even if* [Save to SD Card] is *not* enabled in ***Video Motion Detection*** section. After network is re-established, users may access to SD Card in order to *playback* events occurred during disconnected period.

AVI files at 5fps will be saved to SD Card continuously.

Please note, this feature is only available to non-wireless models.

4. Network IP Detection.

Click [Enabled] to activate IP Check function, then enter a website to be connected for testing.

Action of each *IP Check* may be stored on SD Card for future reference. ***Interval between two recordings on SD Card is fixed at 30 second.***

Finally, click [Apply] to effect the changes.

E. Search

This section contains two main portions as follow:

a. Playback

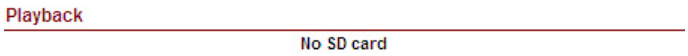
b. Log Book

a. Playback.

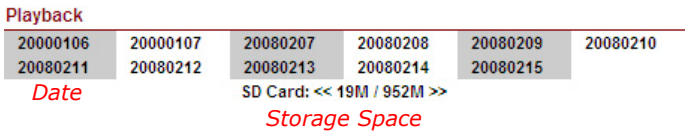
IP Camera feature one SD Card storage port (card is not included in the package) for local recording. In case any events occur, you may access IP Camera then search and playback SD archives for verifications.

To use, please insert a SD Card into port completely.

When there is no SD Card inserted, playback window will be shown as follow:



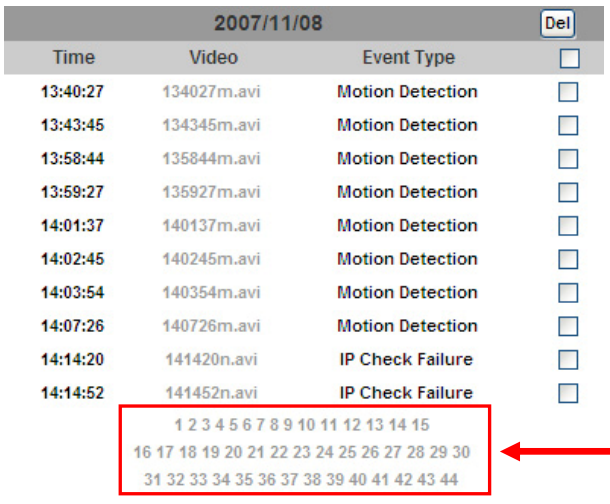
When there is a SD Card inserted and recording has proceeded, playback window will shown as follow:



Date. Recorded events are categorized by date. Click a [Date] in order to search.

Storage Space. This section shows *Used and Free Size* of inserted SD Card storage medium.

1. To playback, click on one of the dates, a list of events similar to the following will be shown:


2007/11/08
Del
Time Video Event Type
13:40:27 134027m.avi Motion Detection
13:43:45 134345m.avi Motion Detection
13:58:44 135844m.avi Motion Detection
13:59:27 135927m.avi Motion Detection
14:01:37 140137m.avi Motion Detection
14:02:45 140245m.avi Motion Detection
14:03:54 140354m.avi Motion Detection
14:07:26 140726m.avi Motion Detection
14:14:20 141420n.avi IP Check Failure
14:14:52 141452n.avi IP Check Failure
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44

Event types include: ***video motion detection***, ***alarm triggering*** (selected models only), ***network disconnection*** (non-wireless models only) , and ***network IP detection***.

There are 10 events per page, and there can be as many pages as SD Card space is available.

AVI files are saved in AVI format, and maybe playback by standard *Windows Media Player* without having special video codec pre-installed.

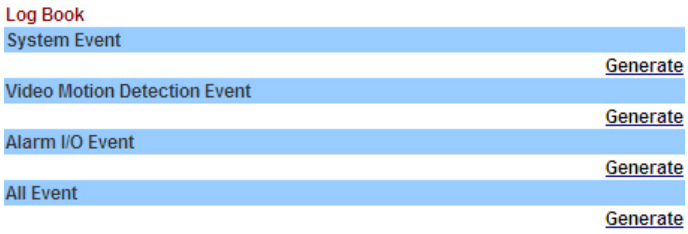
Please note, when undertaking local recording of AVI video clips to SD Card, audio is not included. In order to playback full video with audio simultaneously, please use free-bundle 36-channel advanced remote surveillance system ***NVR*** software provided in Software CD.

2. **File Management.** Check blank boxes then click [Del] in order to ***delete*** selected files from SD Card.

SD Card will *overwrite itself automatically* when available space is full. Please choose a size of SD Card that can at least record certain period of time. For instance, there is a network failure during a weekend and no technician is available, thus *no remote recording* of events to advanced NVR surveillance system is possible. In this case, you will need a SD Card for at least two days of *local recording against network failure*. For extra security, make sure you will always verify SD archives per period of time or whenever receive event notifications via e-mails.

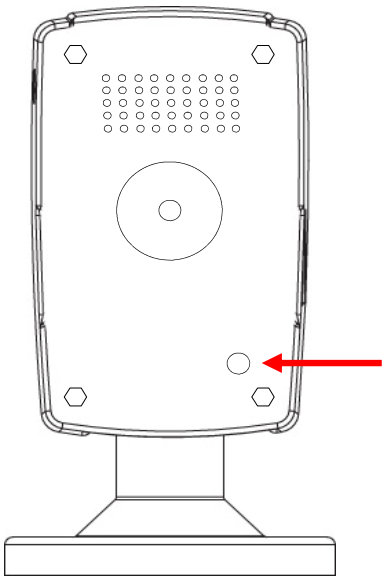
b. Log Book.

This section allows users to review all important events occurred to this IP Camera. Types of log include: ***System Log***, ***Video Motion Detection***, ***I/O Detection*** (available only to selected models).



VII. Factory Default

In case *User Name*, *Password*, and/or *IP information* are lost, users may reset all values back to factory default. Please follow steps described below:



Factory Default
Pressing the button in order to reset hardware values.

A. Unplug the power.

B. Press the button shown above.

C. Plug-in the power. Do not release the button during this process.

D. Hardware re-booting will take in approximately 30 seconds.

E. Release the button.

F. Use IP Manager in order to customise user-specified IP environment again:

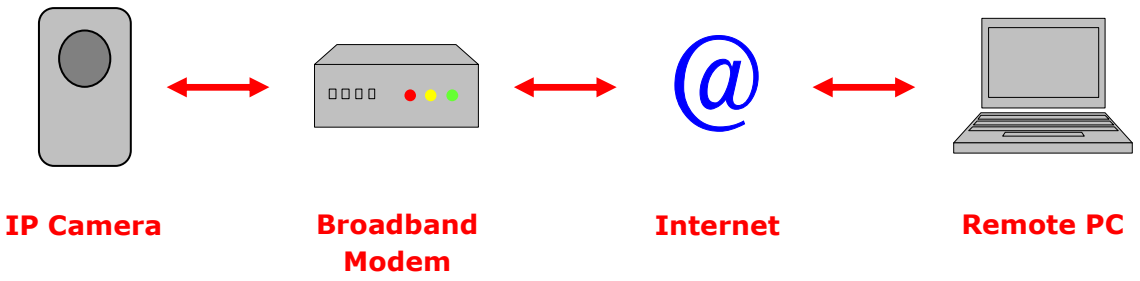
Default IP Address	**192.168.1.200**
Default User Name	**admin**
Default Password	**admin**

Appendix I

Network Environment

Following section will demonstrate three typical examples of general network planning and setting for a typical home/office environment.

A. One Fixed/Dynamic IP



Situation: Only IP Camera is being connected to the Internet.

Only 1 x Fixed/Dynamic IP is available in the network.

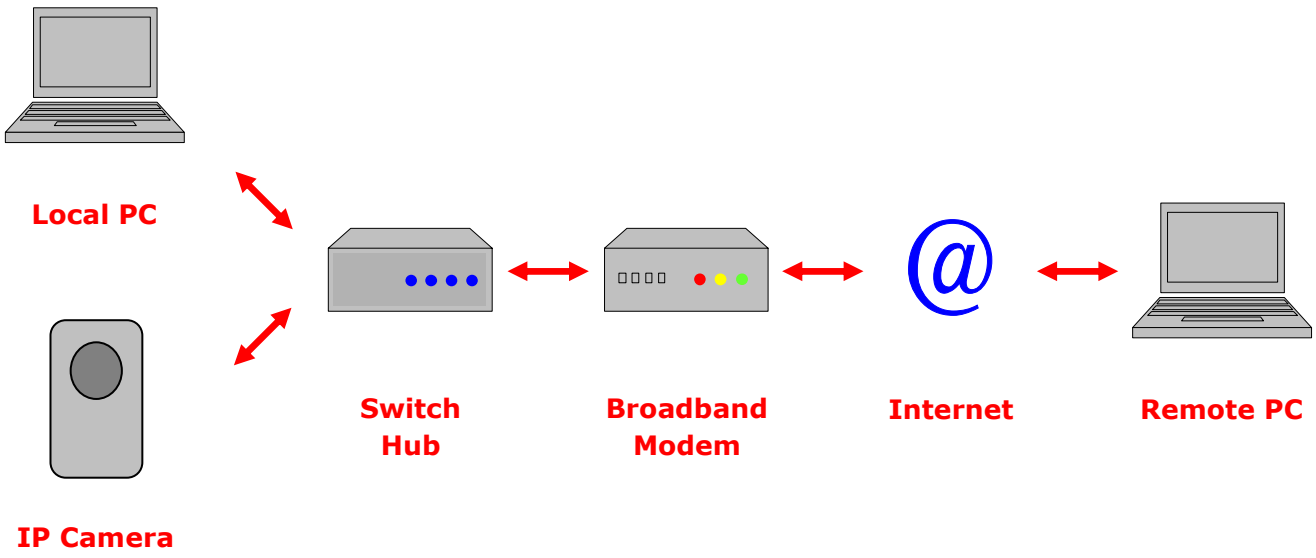
Device: 1 x ADSL/Cable Modem needed.

Connection: a. If you are using Fixed IP, enter it directly to IP Camera (IP Manager).

b. If you are using Dynamic IP, use PPPoE to dial up.

Appendix I

B. Two or More Fixed/Dynamic IP



Situation: Both IP Camera and Local PC are being connected to the Internet.

There are 2 (or more) x Fixed/Dynamic IP are available in the network.

Device: 1 x ADSL/Cable Modem is needed.

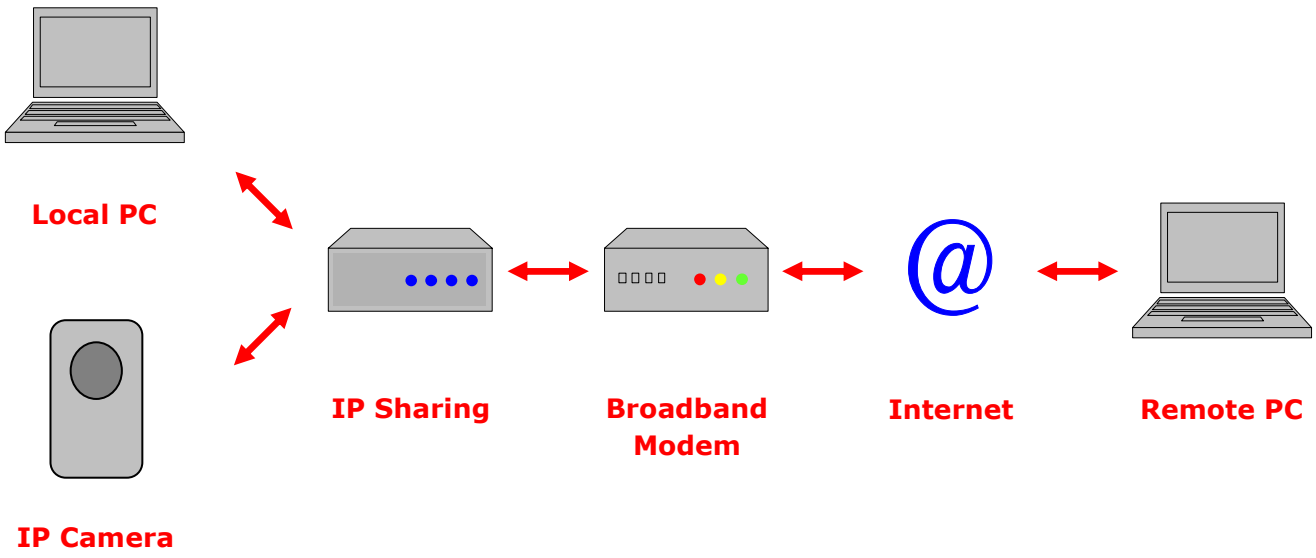
1 x Network Hub is needed.

Connection: a. If you are using Fixed IP, enter it directly to IP Camera (IP Manager).

b. If you are using Dynamic IP, use PPPoE to dial up.

Appendix I

C. Virtual IP



Situation: Both IP Camera and Local PC are being connected to the Internet.

Only 1 x Fixed/Dynamic IP.

Device: 1 x ADSL/Cable Modem is needed.

1 x IP Sharing device is needed.

Connection: Set up *port forwarding* in IP Sharing device.

Appendix II

Recommended SD Cards List

Users are recommended to use following SD Card brands and models:

SanDisk 128MB	Transcend 128MB 80X
SanDisk 256MB	Transcend 256MB 80X
SanDisk 512MB	Transcend 512MB 80X
SanDisk 1GB	Transcend 1GB 80X
SanDisk 2GB	Transcend 2GB 80X
SanDisk 4GB	Transcend 4GB 80X

Please note, specifications of third-party items may change from time to time without prior notice, and IP Camera holds no responsibility whatsoever for any incompatibility this may incur. Please contact an *authorised professional* near you for most up-to-date information.

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